

# LEGAL-FOR-PLAY LONG AND BELLY LENGTH PUTTER SHAFT FITMENT SYSTEM

## Cross Reference to Related Application

5                    This application claims priority from United States Patent Application No. 10/196,140 filed July 17, 2002 entitled Long and Belly Putter Shaft Fitment System.

## Field of the Invention

10                   The invention relates to a method and apparatus for fitment of elongated putters for play in accordance with the rules of golf.

## Background of the Invention

15                   So called long and belly length putters offer many golfers the potential to achieve a smoother more pendulum like putting stroke advantageously improving the golfers likelihood of making a putt. The primary disadvantage of a long and/or belly putter is that a golfer must be properly fitted to be comfortable when using the putter in order to achieve a beneficial result. Further, some long putters may be too long to facilitate ease of storage  
20                   and/or storage for the purpose of transportation. The present invention is an improvement over the prior art wherein threaded shafts, jam nuts, detent pins, tapered shanks, collapsible shafts, lock nuts, threaded pins, removable grips, compression rings, conical bushings, locking pins, and set screws or combinations thereof are used as the primary means of adjustment for fitting or connection of the upper and lower shaft segments of a long or belly putter. These  
25                   mechanisms are of unnecessarily complicated design, and in some cases lacking user friendliness and may be illegal for play in accordance with the United States Golf Association and or the Royal and Ancient Rules of Golf of Saint Andrews, Scotland or the Royal Canadian Golf Association.

Applicant is aware of numerous attempts in the prior art to improve the field of golf clubs, putters, and particularly long and belly length putters. As an example the following United States patents deal with the connection, adjustability, and fitment of long and belly length putters: United States Patent No. 6,283,874 which issued to Studebaker on September 4, 2001, for a Golf Putter; United States Patent No. 6,213,890 which issued to Prince on April 10, 2001 for a Golf Putter; United States Patent No. 5,997,412 which issued to Benson on December 7, 1999 for an Extensible Golf Club; United States Patent No. 5,976,030 which issued to Hsieh on November 2, 1999 for an Adjustable Golf Club Handle Mounting Arrangement; United States Patent No. 5,649,870 which issued to Harrison on July 22, 1997 for an Elongated Golf Club Putter; United States Patent No. 5,496,029 which issued to Heath et al. on March 5, 1996 for an Adjustable Golf Shaft; United States Patent No. 5,452,891 which issued to Thomas on September 26, 1995 for a Golf Putter Improvements and Converter Methods; United States Patent No. 4,104,802 which issued to Johnston on August 8, 1978 for an Apparatus for Use In Manufacturing And Selecting Golf Clubs; United States Patent No. 3,679,207 which issued to Florian on July 25, 1972 for a Golf Putter Construction; United States Patent No. 3,663,019 which issued to Palotsee on May 16, 1972 for an Adjustable Golf Putter; and applicant is further aware of the International Patent Application, No. PCT/NZ98/00056, for the Golf Club of Moore.

What follows is an excerpt from a publication of the United States Golf Association entitled A Guide to the Rules on Clubs and Balls, and in particular an excerpt regarding the rules for the adjustability of clubs:

**"Adjustability**

Appendix II, 1b states that:

Woods and irons shall not be designed to be adjustable except for weight. Putters may be designed to be adjustable for weight and some other forms of adjustability are also permitted. All methods of adjustment permitted by the *Rules* require that:

- (i) the adjustment cannot be readily made;
- (ii) all adjustable parts are firmly fixed and there is no reasonable likelihood of them working loose during a round; and
- (iii) all configurations of adjustment conform with the Rules.

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The disqualification penalty for purposely changing the playing characteristics of a club during a *stipulated round* (Rule 4-2a) applies to all clubs including a putter.

#### **(i) General**

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In order to preserve the integrity of Rule 4-2 (Playing Characteristics Changed), this rule clearly states that it must not be too easy for a player to make adjustments during the course of a stipulated round. This is interpreted to mean that adjustments must require the use of a special tool, such as an Allen key or a Phillips screwdriver. It must not be possible to make the adjustments during a round.

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#### **(ii) Adjustability for weight**

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All clubs may be designed to be adjustable for weight, provided the adjustment mechanism conforms to the conditions described previously and in Appendix II, 1b of the Rules. Examples of what would and would not be permitted are illustrated below. [see Figure 1b]

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As already noted in Design of Clubs, Section 1a, with respect to adjustments for weight, the only exception to the conditions described in (i) above is the addition or removal of lead tape. This is a practice which pre-dates the introduction of the adjustability rules and is permitted on 'traditional' grounds. Of course, the

addition or removal of lead tape *during* a round is not permitted (see Rule 4-2a and Decision 4-2/0.5 in "Decisions on the Rules of Golf").

**(iii) Other kinds of adjustability**

Only putters may be designed to be adjustable in ways other than weight. For example, a putter may be designed to be adjustable for lie and length. Again, these adjustments must require the use of a special tool, not just the fingers or a coin, etc. If, as is often the case, a screw is used to fix the mechanism, the putter must, for all practicable purposes, be unusable without the screw being in place and tightly fixed.

When assessing the conformity of an adjustable putter, it is important to remember the third condition listed in Appendix II, 1b, and to ensure that the putter cannot be adjusted into a position which does not conform to the Rules. For example, a putter which is adjustable for lie must not be adjustable into a position where the shaft diverges from the vertical by less than ten degrees (see Appendix II, 1d and Design of Clubs, Section 1d), or any other position which would render the club non-conforming."

It has been the applicant's observation that so called belly putters and so called long putters require a trial and error fitment process of the end user in order for the end user to arrive at a satisfactory combination of grip positioning and overall length so as to thereby be able to comfortably use long and belly length putters. Because golfers come in various shapes and sizes, and golfers use putters differently, trial and error fitment is advantageous when long and belly length putters are being considered for purchase.

Although popular on various golf professional tours, with professionals of all ages, long and belly length putters have not made significant inroads with the golfing public. Retailers are reluctant to inventory items that may only fit or work for very few individuals.

5 It has been the applicant's observation that a legal-for-play, user friendly fitment system could satisfy both golfers' demands and retailers' reservations thereby bringing long and belly length putters to mainstream golfing. Additionally, a belly putter fitment system could be used to arrive at an overall length measurement for a single long grip belly putter.

#### 10 Summary of the Invention

The long and belly length putter fitment system of the present invention includes a lower shaft section complete with putter head, an upper shaft section, and a coupler  
15 to join the upper and lower sections to form one singular putter. The upper and lower sections are selected from a selection having various lengths. For example, upper sections, each of differing length, may be combined in various combinations with putter lower sections, each of different overall length and/or lower section grip height. All upper shaft sections are compatible with all lower shaft sections through the use of the shaft coupler. Lower shaft  
20 sections can utilize shafts of various specifications with any number of putterhead styles or models affixed to the distal end of the lower shaft section.

Thus in summary, the long and belly length putter shaft fitment system of the present invention may be characterized as including:

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- (a) an upper shaft selected from a group of upper shafts,
  - (b) a lower shaft selected from a group of lower shafts, including putter head
  - (c) a universal coupler for fitting each of the upper shafts from the group of upper shafts onto each of the lower shafts from the group of lower shafts.

The coupler provides for interchangeable releasable mating engagement of upper and lower shafts, the former onto the latter. Thereby, any one upper shaft may be mated onto any one lower shaft. Within the groups of upper and lower shafts are upper and lower shafts of different lengths.

To satisfy the rules of golf the following minimum dimensions apply.

The group of upper shafts may include upper shafts having lengths ranging from 6.5 inches and longer. The group of lower shafts may include belly length putters having lengths ranging from eighteen inches and longer, and long style putters having lengths ranging from eighteen inches and longer.

The coupler may include first and second sections, where the first sections are mounted to upper shafts, and the second sections are mounted to lower shafts. The first and second sections are non-rotatably mountable to each other, that is, they cannot be rotated relative to each other once mounted to each other. A male non circular annular flange on one of the sections slidably mates along a longitudinal axis of the upper and lower shafts into a female non circular relief in the other of the sections. Locking means are provided for releasably locking the non circular annular flange into the non circular flange relief.

The first section of the coupler may be a cylindrical body mountable at a first end thereof to a lower end of the upper shaft and having at an opposite second end the non circular annular flange extending therefrom. The second section of the coupler may be a cylindrical body mountable at a first end thereof to an upper end of the lower shaft and having, at an opposite second end, the non circular flange relief formed therein.

The non circular annular flange may be a rigid member having a non-round cross-section in a plane orthogonal to the longitudinal axis. The flange relief may be a

correspondingly shaped cavity for snug sliding fitment of the non circular annular flange into the flange relief so as to prevent rotation of the non circular annular flange about the longitudinal axis relative to the flange relief.

5                   The locking means may be a threaded collar slidably and rotatably mounted on the cylindrical body of the upper shaft section. The second end of the second section of the coupler may have internal threads formed thereon for threaded mating with the threads on the collar. The first section of the coupler may have a non circular annular flange on the second end. The collar clamps the flange against the second end of the second section of the coupler  
10 when threaded onto the threads on the second end of the second section of the coupler.

                  The annular flange may be of non round cross section mating with a corresponding non round relief in the receiver section. The non round annular flange may be asymmetric and the female flange relief may have a corresponding asymmetry. For example,  
15 the annular flange may include a singular axis asymmetrical non round cross section in which case the female flange relief has a corresponding singular axis asymmetrical non round relief. The annular flange may also include a bi axis asymmetrical non round cross section in which case the female flange relief has a corresponding bi axis asymmetrical relief.

20                   The long and belly length putter shaft fitment method using the above device according to the present invention the steps of:

- (a) selecting an upper shaft from the group of upper shafts,
- (b) selecting a lower shaft from the group of lower shafts,
- 25 (c) using the universal coupler, fitting one of the upper shafts of the group of upper shafts onto one of the lower shafts of the group of lower shafts and interchanging different sized or lengths of the shafts until a correct fit is achieved and then recording or making note of the correct lengths to achieve the fit.

### Brief Description of the Drawings

Figure 1 is, in side elevation partially cut away view, a long or belly putter shaft of the long and belly length putter shaft fitment system of the present invention.

Figure 1a is an enlarged partially cut away view taken from Figure 1.

Figure 1b is an illustration from the prior art publication entitled "A Guide to the Rules on Clubs and Balls".

Figure 2 is a cross sectional view along line 2-2 in Figure 1a.

Figure 2a is an exploded view of Figure 2.

Figure 3 is in side elevation view the locking collar of Figure 1.

Figure 3a is, in plan view, the locking collar of Figure 3.

Figure 4 is, in side elevation view, the first or upper section of the shaft coupler according to one aspect of the present invention.

Figure 4a is a bottom view along line 4a-4a in Figure 4.

Figure 5 is, in side elevation view, a second or lower section of the shaft coupler according to one aspect of the present invention.

Figure 5a is a top view along line 5a-5a in Figure 5.



Figure 6 is, in side elevation view, the upper section of the shaft coupler according to a further embodiment of the present invention.

Figure 6a is a view along line 6a-6a in Figure 6.

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Figure 7 is, in side elevation view, the lower section of the shaft coupler according to a further embodiment of the present invention.

Figure 7a is a view along line 7a-7a in Figure 7.

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Figure 8 is a fitment table according to an aspect of the long and belly shaft fitment system of the present invention.

#### Detailed Description of Embodiments of the Invention

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As seen in Figure 1, putter 10 includes upper shaft component 12 mounted interchangeably to lower shaft component 14 by means of a coupler 16. Shaft components 12 and 14 may be of various lengths to allow proper fitment and use of putter 10 as a long putter or belly putter. The ends of coupler 16 are sized to fit within the inner diameter of the hollow ends of shafts 12 and 14. The coupler includes an upper bolt section 16a, a lower receiver section 16b, and a threaded sliding collar 16c.

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The smooth inner bore of threaded collar 16c, better seen in Figures 2 and 2a, is sized for a snug sliding fit over the outer diameter of upper shaft section to allow for smooth rotation of the collar in direction A about longitudinal axis B, and simultaneous longitudinal sliding in direction C. Collar 16c has an external helical thread 20 matched to the internal thread 22 in hub 24 lower receiver section 16b. Threaded collar 16c advantageously includes recessed surfaces as seen in Figure 3 sized to mate with a face pin spanner type wrench to facilitate tightening and or loosening of the collar down onto the lower receiver section. Upper

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bolt section 16a may have a hollow shank section 28 sized to fit the inner diameter of a hollow upper shaft wherein the shank may be either adhesively bonded or pressed into place in the shaft.

5                    Lower receiver section 16b has a hollow shank section 38 sized to fit the inner diameter of a hollow lower shaft 14. It too may be either adhesively bonded or pressed into place in the lower shaft.

10                    A non circular annular flange 30 on bolt section 16a such as seen in Figures 4 and 4a mates with a non circular flange relief 32 on receiver 16b such as seen in Figures 5 and 5a. Non circular annular flange 30 protrudes from bolt section 16a so as to snugly mate into a flange relief 32 in receiver section 16b. The flange and flange relief may be for example non round, such as scalloped as illustrated, in cross section so as to prevent relative rotational translation between bolt section 16a and receiver section 16b when the flange is mounted into  
15                    the flange receiver, such as when an upper shaft is mated to a lower shaft according to the present invention.

                      The use of an asymmetrical non circular annular flange 30' having for example a singular axis asymmetric bulge 30a' asymmetrical about axis D such as seen in Figures 6 and  
20                    6a, allows for alignment of the grips on the upper and lower shafts where the use of logos or alignment marks along the grip is desired. The asymmetry of the flange may include more than single axis asymmetry. For example if bulge 30a" (shown in dotted outline) is added, then the flange, and corresponding receiver section, will have a bi axis asymmetry, that is, is asymmetrical about both orthogonal axes D and E.

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                      The non circular annular flange 30 or 30' must be fully engaged into correspondingly shaped relief 32 or 32' in order for the seating surfaces to mate and to allow for engagement of the threads on the threaded collar with the threads on the receiver section. Additionally, the combination of the centering key, non circular annular flange, and threaded

collar inner bore promotes correct engagement of the threads on the collar with the threads on the lower receiver section.

The rules of golf allow for the use of a two piece puttershaft providing that:

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- (i) The shaft is not adjustable during play in overall length and lie angle.
- (ii) Modification (for example assembly and disassembly) requires the use of a special tool or tools.
- (iii) The shaft remains straight from a distance of five inches above the sole of the putter.
- (iv) If two grips are used both must be circular in cross section and at least 1.5 inches apart and neither grip can fit within the players palm under 5 inches or exceed one and three quarter inches in diameter.
- (v) There is no reasonable likelihood of working loose during a round of golf.

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The coupler 16 of the present invention satisfies the rules of golf for the following reasons:

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- (i) The mating of the bolt section onto the receiver section so as to mate seat 30 onto land 32 ensures that the entire shaft remains straight and set to a fixed length,
- (ii) The non circular annular flange 30 or 30' on the bolt section and flange relief 32 or 32' respectively on the receiver section prevents rotation of the upper shaft relative to the lower shaft thus preventing the golfer from disassembling the shaft by gripping and rotating the shaft sections counter to one another, and

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(iii) The threaded collar may only be properly tightened so as to rigidly mate the upper shaft onto the lower shaft and thus may only then be loosened with a tool such as a face pin spanner type wrench.

5 Without intending to be limiting, shaft coupler 16 may be made of aluminium, titanium, brass, steel, copper, or for example compositions such as metallic compositions, carbon composites, polycarbonates, and plastics including fibreglass reinforced plastics and the like. The shaft coupler may be manufactured by machining, forging, casting, moulding, or any combination thereof, for any of said couplers components. In one manufacturing method,  
10 shaft coupler 16 may be precision lathe turned from a high strength light alloy thus ensuring proper shaft alignment, solidity of feel and high strength without the weight penalty associated with heavier materials.

The table illustrated in Figure 8 is an example of the variety of combinations of  
15 common putter sizes which may be accommodated according to the present invention. Thus in the illustrated example, not intended to be limiting, sixteen upper shaft lengths ranging from five to twenty inches, may be interchangeably combined with fourteen lower shaft lengths and styles (twenty-eight to thirty-six inch belly length and thirty-four to forty-two inch long style) for a tabulated total of two hundred twenty-four combinations afforded a retailer or pro-shop  
20 by the retention of a stock of merely 30 pieces. Thus a retailer merely has to use a fitment table such as illustrated in Figure 8 to allow the fitment of appropriate upper and lower sections for a particular user, each such combination having its own unique fitment code. The fitment code for a particular user might for example be retained in a data base for later use in fitting new putters to the particular user.

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As will be apparent to those skilled in the art in the light of the foregoing disclosure, many alterations and modifications are possible in the practice of this invention without departing from the spirit or scope thereof. Accordingly, the scope of the invention is to be construed in accordance with the substance defined by the following claims.